CLAIMS

1. A method for protecting a human patient or a mammalian animal to be subjected to chemotherapy treatment of a tumor not residing in the scalp of the patient or the skin of the animal against chemotherapy-induced alopecia, comprising administering to the scalp of the patient or the skin of the animal an effective amount of a composition comprising a chemical inducer of the stress protein response sufficiently prior to the administration of a chemotherapeutic drug.

2. The method of claim 1, wherein the composition comprises a chemical inducer of the stress protein response that is selected from the group consisting of diamide, a benzoquinone ansamycin, an arsenic salt, a tin salt, a zinc salt and an activated HSF1 in nucleic acid or protein form.

3. The method of claim 1, wherein the composition comprises a chemical inducer of the stress protein response and a penetration enhancer.

4. The method of claim 1, wherein the composition comprises a penetration enhancer and a chemical inducer of the stress protein response selected from the group consisting of diamide, a benzoquinone ansamycin, an arsenic salt, a tin salt, a zinc salt and an activated HSF1 in nucleic acid or protein form.

5. The method of claim 1, wherein the composition comprising a chemical inducer of the stress protein response is administered between 2 and 36 hours ahead of the administration of the chemotherapeutic drug.

6. The method of claim 1, wherein the composition comprising a chemical inducer of the stress protein response is administered between 8 and 24 hours ahead of the administration of the chemotherapeutic drug.

7. The method of claims 5 or 6, wherein the composition comprises a chemical inducer of the stress protein response that is selected from the group consisting of diamide, a benzoquinone ansamycin, an arsenic salt, a tin salt, a zinc salt and an activated HSF1 in nucleic acid or protein form.

8. The method of claims 5 or 6, wherein the composition comprises a chemical inducer of the stress protein response and a penetration enhancer.

9. The method of claims 5 or 6, wherein the composition comprises a penetration enhancer and a chemical inducer of the stress protein response selected from the group consisting of diamide, a benzoquinone ansamycin, an arsenic salt, a tin salt, a zinc salt and an activated HSF1 in nucleic acid or protein form.

10. A method for protecting a human patient or a mammalian animal to be subjected to chemotherapy treatment of a tumor not residing in the scalp of the patient or the skin of the animal against chemotherapy-induced alopecia, comprising administering to the scalp of the patient or the skin of the animal a composition comprising a chemical inducer of the stress protein response in an amount that is equal to or greater than that required to cause a detectable increase in the concentration of a stress protein selected from the group consisting of Hsp90, Hsp70, Hsp25-27 and P-glycoprotein in cells of hair follicles at the time of administration of a chemotherapeutic drug.

11. The method of claim 10, wherein the composition comprising a chemical inducer of the stress protein response is administered between 2 and 36 hours ahead of the administration of the chemotherapeutic drug.

12. The method of claim 10, wherein the composition comprising a chemical inducer of the stress protein response is administered between 8 and 24 hours ahead of the administration of the chemotherapeutic drug.

13. The method of claims 11 or 12, wherein the composition comprises a chemical inducer of the stress protein response that is selected from the group consisting of diamide, a benzoquinone ansamycin, an arsenic salt, a tin salt, a zinc salt and an activated HSF1 in nucleic acid or protein form.

14. The method of claims 11 or 12, wherein the composition comprises a chemical inducer of the stress protein response and a penetration enhancer.

15. The method of claims 11 or 12, wherein the composition comprises a penetration enhancer and a chemical inducer of the stress protein response that is selected from the group consisting of diamide, a benzoquinone ansamycin, an arsenic salt, a tin salt, a zinc salt and an activated HSF1 in nucleic acid or protein form.

16. A method for protecting a human patient or a mammalian animal to be subjected to chemotherapy treatment of a tumor not residing in the scalp of the patient or the skin of the animal against chemotherapy-induced alopecia, comprising administering an effective heat dose to the scalp of the patient or the skin of the animal sufficiently prior to the administration of a chemotherapeutic drug.

17. The method of claim 16, wherein the effective heat dose is a dose equal or greater to that required to cause a detectable increase in the concentration of a stress protein selected from the group consisting of Hsp90, Hsp70, Hsp25-27 and P-glycoprotein in cells of hair follicles at the time of administration of a chemotherapeutic drug.

18. The method of claim 17, wherein the heat dose is administered between 2 and 24 hours ahead of the administration of the chemotherapeutic drug.

19. The method of claim 17, wherein the heat dose is administered between 6 and 12 hours ahead of the administration of the chemotherapeutic drug.

20. The method of claims 16-19, wherein the heat dose is administered by a means selected from the group consisting of direct contact with heated surface or liquid, infrared radiation, microwave radiation, ultrasound and radiofrequency radiation.

21. A pharmaceutical composition for protection against chemotherapy-induced alopecia comprising a chemical inducer of the stress protein response, a penetration enhancer and a diluent or solvent.

22. The pharmaceutical composition of claim 21, wherein the chemical inducer is selected from the group consisting of diamide, a benzoquinone ansamycin, an arsenic salt, a tin salt, a zinc salt and an activated HSF1 in nucleic acid or protein form.